

124

SEPTEMBER 2016
ARCHITECTURAL
STEEL INNOVATION
WITH BLUESCOPE

STEEL PROFILE



MCBRIDE CHARLES RYAN
IVANHOE GRAMMAR SCHOOL,
SCIENCE AND SENIOR YEARS CENTRE

FJMT
AUSTRALIAN NATIONAL MARITIME MUSEUM
WATERFRONT PAVILION

IN PROFILE:
JULIE EIZENBERG OF KONING EIZENBERG ARCHITECTURE

EDITORIAL

Welcome to *Steel Profile* 124.

We are, as always, proud to bring our readers a collection of the country's finest steel architecture and some glimpses into the adventurous and creative minds behind it.

BlueScope is a longstanding supporter of architectural excellence. This is our 31st year as Principal Corporate Partner of the Australian Institute of Architects and we continue our support of the Institute's endeavours to foster industry change and improve the built environment.

Across the country architects are working on projects of all scales and types – from bespoke houses to city-shaping infrastructure. The boundless design possibilities that BlueScope building products offer, matches this diversity and transformative capacity.

As the world changes BlueScope is constantly innovating, responding to the changing needs of architects, community expectations and industry benchmarks. We have reorganised the way we engage with the profession day-to-day through the introduction of specification experts in every Australian state and territory.

We look forward to working with you to develop the best building solutions for your projects no matter how big or small or where they are located.

Tanya Tankoska
BlueScope editor

EDITORIAL ADVISORY PANEL

Steel Profile has an Editorial Advisory Panel to ensure that only projects of the highest calibre are selected for publication. The panellists are:



FRANK STANISIC

Stanisic Associates founder Frank Stanisic is a Sydney-based architect and urbanist.

His work is fuelled by an evolving interest in the diagram and frame as a basis for architectural invention, and the aesthetics of permeability.

Frank's projects have won numerous awards including Australian Institute of Architects' Special Jury, Wilkinson, Aaron Bolot and Frederick Romberg prizes



PENNY FULLER

Penny is a partner at Silvester Fuller, established in 2008. Silvester Fuller's first built projects have been awarded for their creativity and design sensibility. Penny's work draws on experience gained across a broad range of international projects. She is a previous recipient of the Australian Institute of Architects' Emerging Architect Prize



MATTHEW HYLAND

Matthew Hyland works with Woods Bagot. He obtained a Master of Architecture from the University of Tasmania and was awarded the 2015 BlueScope Glenn Murcutt Student Prize.

Having a preoccupation with enriching the ordinary, Matthew is continuing to develop and refine design processes through observation, research and experimentation

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The importance of science education is elevated in this new school building by McBride Charles Ryan, which embodies the same sense of curiosity and wonder it aims to ignite in its students



PHAB architects has thrown a cloak of distinctive COLORBOND® steel cladding to repurpose an old Sunshine Coast condensed milk factory as a community arts space

Principal Corporate Partner



COVER PROJECT
Ivanhoe Grammar School, Science and Senior Years Centre
PHOTOGRAPHER
John Gollings



Cox Rayner Architects has devised a zig-zagging and stepped design for a new pedestrian walkway that particularly harmonises with the surrounding landscape



FJMT's design for a Sydney waterfront pavilion building echoes the shapes and strong-yet-light construction methods of naval vessels, with a twisting carapace of rhythmically offset composite steel panels



Los Angeles-based architect Julie Eizenberg's larrikin spirit imbues her architecture with a sense of social responsibility that is more rebellious than righteous



Architect Fiona Winzar has employed a chorus of steel as framing, cladding and shading, to transform a tired former clinker-brick town house



A new lightweight steel structure has created a valuable new commercial building by Grimshaw, complete with views of Melbourne's Southern Cross Station's distinctive undulating roof

NUMBER 124, SEPTEMBER 2016

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BS

DISCOVERY CENTRE

McBride Charles Ryan elevates the importance of science education in this new school building, which embodies the same sense of curiosity and wonder it aims to ignite in its students. Words **Rachael Bernstone**
Photography **Bob Seary; John Gollings**

ARCHITECT
McBride Charles Ryan
PROJECT
Science and Senior Years Centre,
Ivanhoe Grammar School Plenty Campus
LOCATION
Doreen, Victoria

Where some architects are lauded for a particular style and works that are instantly recognisable, McBride Charles Ryan (MCR) is renowned for creating buildings that are spectacular and surprising, from seemingly ordinary and everyday briefs. Its latest project – the Science and Senior Years Centre at Ivanhoe Grammar School's Plenty Campus, affectionately known as The Round – is a triumph on many levels. It confidently melds distinct architectural languages, it combines a strong civic appearance with a fun and child-friendly interior, and it aims to encourage students to study subjects that lead to science, technology, engineering and mathematics (STEM) careers.

MCR won the project in a selection process that involved expressions of interest and interviews with a concept design that was strongly influenced by the greenfield site and surrounding buildings (Ivanhoe Grammar's Plenty campus was established in 1990). MCR owner Debbie Ryan says she and her colleagues were struck by two main observations after their first site visit. "We knew that our design had to fit in with the environment of natural bushland, and it had to be iconic to give the campus a focus."

The brief comprised a straightforward list of requirements – a large building with classrooms and science labs for students from Prep to Year 12 – and the resulting design is astonishing. At the building's official opening in March 2016 Victoria's Governor Linda Dessau described The Round as a "magnificent, state-of-the-art building".

"Victoria, being a State that lacks the mineral resources of other States, has for some time had to rely on innovative ideas and knowledge in order to be economically competitive on the international stage," Governor Dessau said. "STEM-related

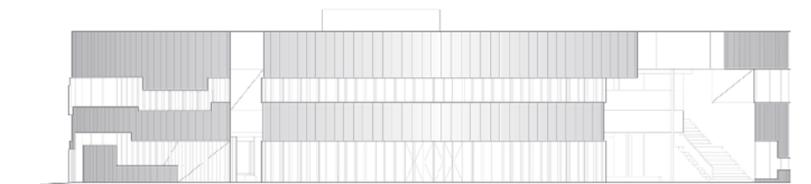
"The Round provides the foundation to spark a young person's interest in science, and indeed an interest in education"

industries are at the forefront of our State's economy, with Victoria having, for example, the world's fifth-largest Biotechnology sector."

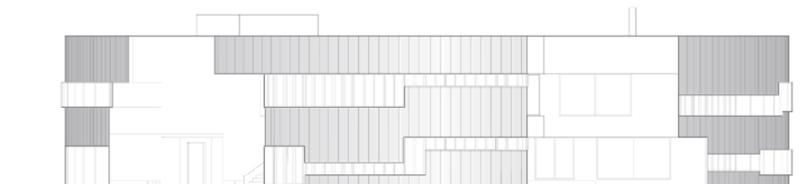
She added that The Round "provides the foundation to spark a young person's interest in science, and indeed an interest in education".

That spirit of inquiry, curiosity and expanded horizons is embedded into the building's design, according to Debbie Ryan, who says The Round takes its cues from an unusual type of spherical rock that forms in volcanoes.

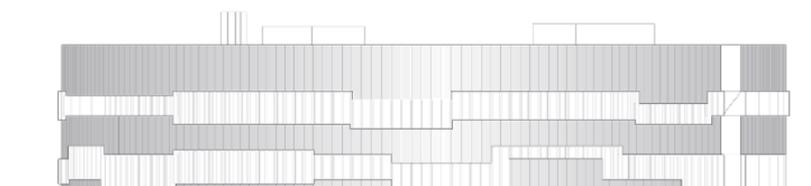
"We were inspired by thunder eggs which look like natural stones on the outside, but when you crack them open, they are filled with mad, vibrant colours, and they reveal an incredible wonderland,"



EAST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

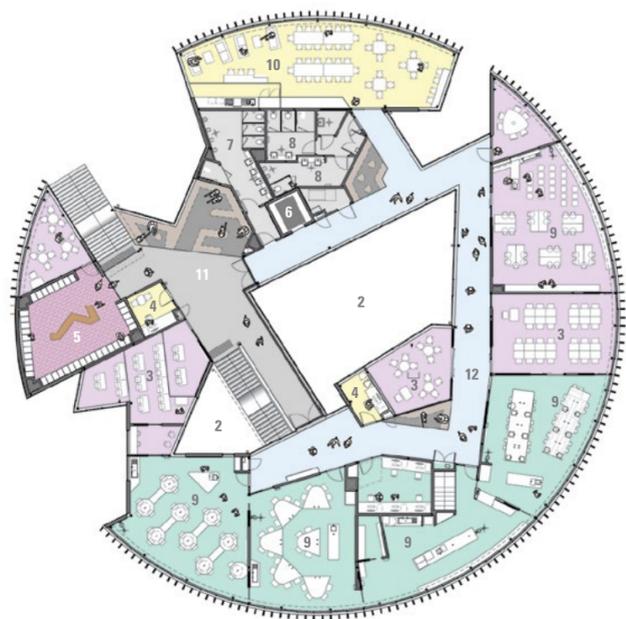


ABOVE AND LEFT: Carefully placed within the school's established native gardens, The Round was designed to sit comfortably within the landscape and provide easy access to outdoor learning opportunities





GROUND FLOOR PLAN



FIRST FLOOR PLAN

LEGEND

- | | |
|-------------------|----------------------|
| 1. Entry | 7. Student WC |
| 2. Void/courtyard | 8. Staff WC |
| 3. Class rooms | 9. Lab |
| 4. Staff rooms | 10. Staff lounge |
| 5. Locker areas | 11. Deck/colonnade |
| 6. Lift | 12. Display corridor |



ABOVE AND RIGHT: The building can be entered via one of three jagged-edged openings that pierce its circumference. These offer a sample of the vivid colours within, including a central green courtyard



Ryan says. "In a thunder egg, the inside is completely different to the outside and we've created the same effect in this building: the outer skin fits in so well with its environment but we've cracked it open to entice people to venture inside. The three entries offer glimpses of that burst of colour to lead people in, so they can discover the kaleidoscope-like interiors."

Wrapping the circular skin of this thunder egg in COLORBOND® steel in LYSAGHT LONGLINE 305® profile in the colour Monument® was an easy decision, Ryan says. "We thought it was the obvious choice because it fits in so well in that environment," she explains. "The lines in the profile work really well with the elements of the laminated spotted gum fins, and that Monument® colour is so perfect against the black-stemmed eucalypts."

As The Round is not visible from surrounding streets – it occupies a prime position near the centre of the campus – the project provided the architects with an opportunity to deliver a strong and confident focal point for the school community, Ryan says.

"Because this is a relatively new school, our design had to say something about the school itself," she explains. "The civic quality of this building was important to establish the newer campus as being solidified: to demonstrate that it's growing up."

The regular repetition of the LYSAGHT LONGLINE 305® profile and the moodiness of the colour Monument® convey a sense of classical order that enhances the building's civic quality, she says.

"And budget was a constraint, as is often the case, so that's another way that COLORBOND® steel helped us out enormously," Ryan adds. "The cost was reasonable, the material is efficient, and it looks beautiful."

"COLORBOND® steel helped us out enormously. The cost was reasonable, the material is efficient, and it looks beautiful"

The unusual shape of the building helped the architects to achieve many of their objectives for this project. "The site is dominated by Australian natives: the school has beautiful gardens with a lot of indigenous plantings that we wanted to maintain," Ryan explains. "We determined that a round building with courtyards in the middle would sit comfortably within the existing trees, and be an efficient building type in terms of offering outdoor learning opportunities. The central courtyard makes the threshold between indoors and outdoors seamless, because when weather permits they can open big sliding doors to expose those classrooms to the courtyard."



The building is entered via one of three jagged-edged openings that pierce the circumference, offering a sample of the vibrant bursts of rainbow-inspired colours within, and denoting the shift to an angular geometry. “The school wanted a range of interconnected spaces for different activities, which we envisaged as a kind of mosaic of spaces within the round form,” Ryan says. “This geometry contrasts with the building’s circular shape, highlighting key entry points and providing a distinction between the outer world, which is singular, civic, circular and executed in a muted landscape palate, and the inner world, which is complex, dynamic, expressive and colourful.”

The regular repetition of the LYSAGHT LONGLINE 305® profile and the moodiness of the colour Monument® convey a sense of classical order that enhances the building’s civic quality

This weaving together of these two distinct architectural languages embodies the school’s multi-layered approach to a well-rounded education, Ryan asserts. “The circular form is classical, representing order and the certainty of knowledge, while the building’s inner world represents the uncertainty and complexity of modern life and scientific understanding, and the necessity of the qualities of wonder and imagination to see us through.”

The Round incorporates 10 new classrooms and a pastoral and social hub for Year 10 to 12 students, and four science labs that are used by the entire student body. The senior level classrooms feature small breakout areas for private study and these, along with the social hubs, support flexible and collaborative learning modes.

One general science lab serves primary and middle school students, while senior students have access to three specialist labs: the physics

lab boasts a long bench to facilitate motion and other experiments, the biology room has a collaborative horseshoe-shaped design that enables flexible teaching of practice or theory while the chemistry lab is adjacent to a dedicated classroom that enables students to move easily between practical and theoretical components.

These labs were modelled on tertiary education facilities and aim to provoke and stimulate students’ interest in advanced level science, and to foster independent learning to help them make an easy transition to university environments.

Students have expressed their enjoyment and delight in using the new building, according to

Ryan, who supplied some comments from pupils. Year 10 student, Max, said: “I love the natural light. How good are the private study spaces? The labs are like what they have at Melbourne University.”

Year 12 student, Vahenni, praised the multi-functional nature of the interior spaces, saying: “It’s open and connected so you can move easily from one room to the other and the spaces allow for teamwork. We use lots of the breakout rooms for study. You feel really grown up using it.”

Even though MCR has delivered ground-breaking and award-winning education projects before, The Round bears little resemblance to any of them (see the Penleigh and Essendon Junior Boys School project in *Steel Profile* 110 to appreciate the differences). Of course, each project occupies a different context, but the differences go deeper than that. Each of the firm’s education projects is underpinned by a different educational pedagogy, Ryan says, leading to dramatic variations in form, methods of circulation, and types and arrangements of teaching spaces.

ABOVE AND RIGHT: The architects chose to clad the building in COLORBOND® steel in LYSAGHT LONGLINE 305® profile in the colour Monument® to emphasise the building’s unusual form and to accentuate its connection to the landscape

PANEL SAYS

There is a delightful sense of conceptual clarity in this project: a big idea that is judiciously executed to confidently proclaim the importance of education. The solid and singular exterior – wrapped in COLORBOND® steel in the colour Monument® – cracks open to reveal a series of colourful and playful learning spaces, social hubs and open courtyards that are both legible and welcoming. The shape of the building generates a terrific sense of community while the masterful interplay of two geometries portrays an underlying narrative. Messages about the designers’ intent and the school’s educational ethos have been written into the building’s form and function



“Each school has its own philosophy as to what constitutes the best type of learning spaces, and it’s our role as architects to facilitate those ideas into built form,” she says. “Each of our schools has had a radically different approach to teaching and learning spaces: some schools call for larger types of spaces where the furniture arrangement makes all the difference, while others require discrete, purposeful spaces that people can move through in a very fluid way.”

The one quality that MCR’s education projects all share is the firm’s ability to turn seemingly straightforward briefs into remarkable buildings, which in turn provide stimulating and nurturing environments for students to reach their full potential. The thunder egg analogy that inspired this building applies equally well to MCR’s approach to design: you never know what incredible creation will burst forth from a new commission until the architects ‘explode’ the brief.

This latest offering has garnered glowing praise from Ivanhoe Grammar School’s Deputy Principal and Head of Plenty Campus, Deborah Sukarna. “We are absolutely thrilled with The Round,” Sukarna says. “It has been wonderful to see our students and staff using The Round in a myriad of ways. From a Year 12 biology or prep science class in the new cutting-edge science precinct, to impromptu concerts being held in the central courtyard, this centre has a real buzz about it!

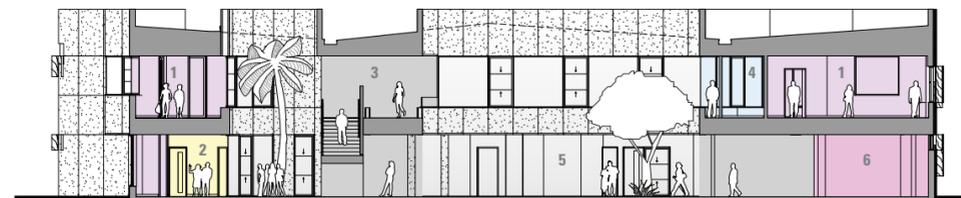
“Learning spaces are interconnected and the classroom design and new technology engages our students in innovative learning that reflects life beyond Ivanhoe,” Sukarna adds.

Naturally, it takes more than great design and inspiring spaces to nurture learning – teachers and curriculum are of greater importance – but in terms of making science subjects more attractive and therefore elevating the discipline’s significance – both during school years and when influencing pathways into adulthood and careers – The Round provides a grand opportunity to make a real difference.

Speaking to *Steel Profile* on the afternoon of the official opening in March, Ryan was still buoyed by the overwhelmingly positive reaction of guests and students who attended the event. “If you’d been at the official opening with us today, you would just think that the building is absolutely right,” she said. SP

LEGEND

1. Lab
2. Deputy head
3. Deck/colonnade
4. Display corridor
5. Void/courtyard
6. Locker area



PROJECT Science and Senior Years Centre CLIENT Ivanhoe Grammar School ARCHITECT McBride Charles Ryan PROJECT TEAM Robert McBride, Debbie Ryan, Drew Williamson, Jamie McCutcheon, Stephanie McNamara, Nick Jones, Matt Borg, Alan Ting, Eva Idham ENGINEER McFarlane & Co SERVICES CONSULTANT NJM Design Consulting Engineers BUILDER Building Engineering STEEL FABRICATOR Bahcon Steel SHOP DRAWING CONTRACTOR Bahcon Steel CLADDING CONTRACTOR Unique Metal Cladding LANDSCAPE CONSULTANT Ochre Landscapes PRINCIPAL STEEL COMPONENTS Main external facade: made from COLORBOND® steel in LYSAGHT LONGLINE 305® profile, in the colour Monument®; Cladding (back of parapet): made from COLORBOND® steel in LYSAGHT SPANDEK® profile, in the colour Monument®; Roofing: made from ZINCALUME® steel in LYSAGHT KLIP-LOK 700 HI-STRENGTH® profile PROJECT TIMEFRAME 18 months AWARDS 2016 Australian Institute of Architects Victoria Chapter Awards: Commendation – Interior Architecture BUILDING SIZE 2600m² TOTAL PROJECT COST \$9.4m

GOLDEN GREAT

Rather than simply create a 'dumb', straight land bridge for an improved entry to the University of Queensland, Cox Rayner Architects devised an undulating, zig-zagging design for a new pedestrian walkway that particularly harmonises with the golden hues of the surrounding landscape.

Words **Rob Gillam** Photography **Christopher Frederick Jones; Paul Bradshaw**

ARCHITECT
Cox Rayner Architects

PROJECT
University of Queensland Pedestrian Link

LOCATION
St Lucia, Queensland



ABOVE: Seven-metre spans of Bondor Equideck® panel made from COLORBOND® steel in the custom Metallic colour Callisto™ create a smooth, uniform finish. A high level of structural steel fabrication creates a bespoke finish that also in-sets custom lighting diffusers

BELOW: The new pedestrian link – which has become the university's primary entrance – changes grades, directions and heights. Formerly up to 20,000 people a day walked up to four abreast on a road aggregate path that changed 12 metres in level from top to bottom



Perhaps there was a hint of destiny at play when University of Queensland Architecture graduate Jack Dodgson found himself tasked with improving the amenity of the institution that taught him his trade.

The Cox Rayner Architects' project architect says the university had previously been accessed mostly via its main western entrance, but that its needs changed after a bus and pedestrian-only Green Bridge to the university's Lakes Entrance was built, resulting in greatly increased foot traffic.

"More and more people started accessing the university from that side," says Dodgson. "What was essentially designed as a back-of-house entrance was receiving the majority of arrivals so it effectively became the front door of the campus."

"The Lakes Entrance became a primary expression of the campus so the university had to recalibrate itself by presenting an appropriate identity and also to provide appropriate access for people using wheelchairs or walking aids."

The main task, however, was replacing the existing footpath from the Lakes Entrance, which had formerly proved challenging and arduous. "It was an existing road aggregate path that dipped down to the bus stop, then back up at a very steep grade to the UQ Student Union building, which leads pedestrians to the university centre."

He says around 20,000 people a day were walking, often four abreast, on this path which became more difficult to navigate when it rained.

"The level change was significant: 12 metres from the bottom of the hill to the top," says Dodgson. "It became a priority for the university to address this by creating more suitable access."

This is when he and project director Richard Coulson – along with the rest of the project team – hatched a design that radically departed from a typical, straight bridge.

"Rather than have one long, monotonous bridge we changed the grades of the pathways," says Coulson. "These have three different roofs with different path directions and heights, which stages the entrance and accentuates the level changes."

"The landscape informs all of the architecture – every decision we made was intended to enhance the landscape experience"

"The path from the bridge is like a threshold which compresses, and then when you're at the top of the stair it's like a window sill that captures the panorama of the lakes."

A cost-effective strategy was implemented to reduce the linking bridge elements by increasing land mass on the ground pass. "By moving earth to get longer landings we were able to reduce the size of the bridge section of the walkway from 75 metres down to 40, which reduced costs considerably."

This cost-saving afforded the architects the opportunity to introduce better overall detailing which is evident in the expressed structural steel and, crucially, to add a roof to the walkway which is clad in the lavish COLORBOND® Metallic steel custom colour Callisto™.

Twelve tonnes of BlueScope COLORBOND® Metallic steel in this colour adorns a 150mm-thick Bondor Equideck® insulated panel. This functions as the roof and soffit of the 175-metre open-sided walkway, with both sides being finished in the same colour.

Dodgson says the intention of the walkway zig-zagging rather than being a direct path to the university was to extend the experience of walking

through the garden for pedestrians and enable them to view the grounds from different aspects.

"Our aim was for people to experience the surrounding garden as much as possible, so the bridge forms a natural landscape concept."

"We wanted to be able to provide shelter from weather but, by keeping it open on the sides, allow views out to the grounds. At several points you are so close to some significant trees it's almost as if you're moving through the tree canopy."

"The landscape informs all of the architecture – every decision we made was intended to enhance the landscape experience."

Coulson says this extended to customising a colour for the roofing panel that linked to the environment. "The choice of the custom colour was informed by a couple of things," he says. "First of all, it's a colour that is very natural and resonates with the local environment. In the office we like to use colours that resonate with natural materials."

"In relation to the specific site, there are fig trees all around the walkway that have little yellow flowers, the back of which are coloured in a remarkably similar gold. There's a lot of gold colour in other vegetation around the project and the colour is also sympathetic to the soil here, although covered by grass, and also the natural sandstone."

"The colour of the steel brings a degree of warmth, especially when it has light on it because of its metallic finish."

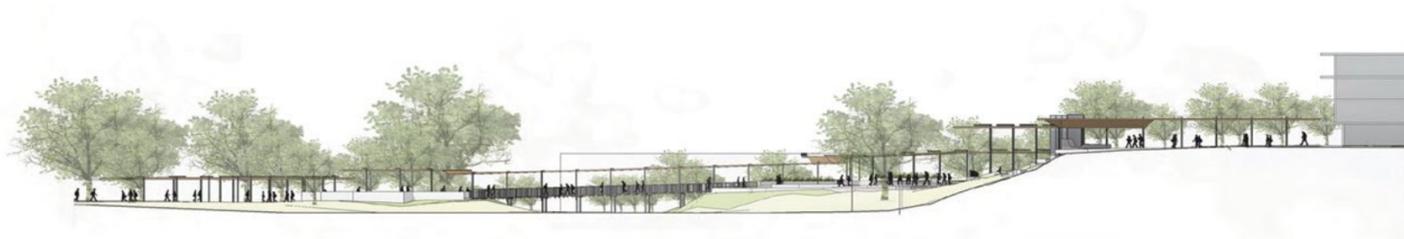
Engineer Nick Canto of icubed consulting says the Bondor Equideck® insulated panel also performed an important structural function. "The panel has a structural edge and excellent spanning capabilities," says Canto. "It was important to have the appropriate thickness in the panel because it has to support maintenance and solar loads and also perform a function as the bracing diaphragm for the structure. Quite impressively, the 150mm panel allowed us to span seven metres."

Canto says the architects' aesthetic vision for the project presented some engineering challenges. "It's a unique project and the architects had a fixed vision for its aesthetics. We had some challenges"



PANEL SAYS

This seemingly mundane project – a pedestrian walkway at the University of Queensland's eastern gateway – demonstrates the capacity of skilful architects and committed clients to deliver something exceptional. A great deal of skill and care is evident in the canopied link-way – with its delicate roof of composite panels made from COLORBOND® metallic steel in the custom colour Callisto™, and gently tapered structural steel columns and angles – that traverses a flood-prone gully. Superbly lit at night, the new pedestrian route offers an enhanced journey across the threshold for the university's ferry and bus commuters, with the added bonus of directing views that emphasise the natural beauty of the landscape



BELOW: The zig-zagging walkway forms a natural landscape concept, extending the walking experience and enabling views from different aspects



BELOW: Twelve tonnes of COLORBOND® Metallic steel in 150mm-thick Bondor Equideck® profile adorns the roof. The un-profiled under-side of the panel, also finished in the custom colour Callisto™, functions as soffit. At several points on the journey pedestrians feel as if they are within the tree canopy



with a cantilevered structure such as this to ensure vibration limits for pedestrian movements and serviceability deflections were not a problem. Also, detailing the pre-cambers to ensure everything looked straight and true was interesting.”

The majority of the structural steel for the primary elements is universal column sections and angles, “but there was also a higher level of fabrication for the coping and flanges that created a more bespoke finish and to integrate with the in-set custom lighting diffusers,” Canto says.

Builder Adam Finn of FKG Group says using prefabricated steel components helped meet a short timeframe for the build. “It was an extremely tight program so the speed of construction offered by the mostly prefabricated steel components such as the panels and the structural steel helped us meet the deadline. It was a lot quicker than using regular construction as it eliminated the need for additional cross supports and, once installed, the panel provided a pre-finished roof and ceiling, eliminating the need for multiple trades.”

Bondor Australia architectural business development manager Andrew Hudson says the company worked closely with the project architect and builder early



“The colour of the steel brings a degree of warmth, especially when it has light on it because of its metallic finish”

on in the process to develop a product that suited the project’s specific needs. “We were intrinsically involved from the start so our designers, engineers and construction arm could collaborate on the project to ensure the best result,” Hudson says. “Having like-minded technical people being able to speak each others’ languages definitely streamlined the build.”

Hudson says the lengthy panel spans greatly contributed to the underside of the roofing panel’s appearance. “The top side of the panel that forms the walkway’s cover is in the Equideck® roofing profile, however the underside is completely flat. Having seven-metre spans of smooth, uniform

finish created a strong visual impact. If we used other materials like cement sheeting the finish would be punctuated by fasteners such as screws fixing into some kind of backing substrate. In this case, the insulated panel holds its own weight so the only interruption is where the panels themselves actually join and that is a concealed fixing.”

Now the project is complete, Coulson says he is delighted that he and the team have managed to create such a distinctive and effective structure in a cost-effective manner.

“Yes, we really pushed the envelope for the budget allocated,” says Coulson. “The expanded detailing

and the steelwork is considerable, and even though it’s a modular approach with the panels, every element is different. Either it’s a different-length column or a different-length cantilever or a slightly different approach to the cut-back, so it took a lot of resolution and detail in the shop drawing to produce it.

“The wonderful thing about it is that it just seems logical and fundamental. Even though there’s a degree of architecture about it, nothing is stopping it from doing the great thing of connecting people from point A to point B, and it does that in an elegant way. It’s nice to see people traversing it or just sitting and using the reflection spaces, waiting for others or reading and undertaking informal learning.

“We were asked to open up this door for the university and we think our solution for that has exceeded expectations. It’s an urban design solution. It’s a landscape solution and required a significant degree of engineering, so I think it’s a complete solution.” SP

PROJECT University of Queensland Pedestrian Link **CLIENT** The University of Queensland **ARCHITECT** Cox Rayner Architects **PROJECT TEAM** Richard Coulson, Jack Dodgson, Justin Bennett, Kim Huat Tan, Mitchell Buckley **PRINCIPAL STEEL COMPONENTS** Cladding: 150mm Bondor Equideck® made from COLORBOND® steel in the custom Metallic colour Callisto™; Structural: universal column sections and angles, welded steel **STRUCTURAL & CIVIL ENGINEER** icubed consulting **BUILDER** FKG Group **STEEL FABRICATOR** AG Rigging & Steel **SHOP DRAWING CONTRACTOR** TJ & J McMahon – Fab Steel Detailing **LANDSCAPE ARCHITECTS** jf+p **PROJECT TIMEFRAME** Five months **BUILDING SIZE** 175 metres long (bridge section 40 metres) **TOTAL PROJECT COST** \$4.2 million



Living in Los Angeles for more than three decades hasn't dented Australian architect Julie Eizenberg's larrikin spirit, which imbues her architecture with a sense of social responsibility that is more rebellious than righteous.

Words Rachael Bernstone

Portrait by Peter Bennetts

JULIE EIZENBERG

Julie Eizenberg and her work and life partner Hank Koning are rare architectural role models. Originally from Melbourne, they have built an award-winning architectural practice in Los Angeles over the past 30 years, but they are not 'starchitects'. Their buildings are considered and considerate, but they don't always aim to be iconic. Instead, this thoughtful, passionate and energetic couple bring a sense of Aussie larrikinism and a spirit of generosity to architectural practice, resulting in buildings that are context- and user-driven, and always approachable and welcoming.

"We design everything from social principles first," Eizenberg says. "I'm not demeaning form or ornament, but that's our starting point mentally."

The couple studied architecture at the University of Melbourne and worked part-time before moving to the United States in 1979. They launched Koning Eizenberg Architecture (KEA) in 1981 after completing post-graduate studies at the University of California in Los Angeles (UCLA). Across the USA, they are well known for their innovative work in the affordable housing sector, and they also design other types including public, institutional and commercial buildings and single-family homes.

Speaking to *Steel Profile* in Adelaide, where Eizenberg was a keynote speaker at the Australian Institute of Architect's 2016 National Architecture Conference, she observed that her peers in the US and Australia face many of the same challenges. These include how to maintain housing affordability

in the face of massive population growth, and the rise of more complex bureaucracies and ever-increasing regulations within the building industry.

In an attempt to tackle the latter issue, KEA approaches rigid frameworks with a "Yes, and" mindset, instead of from a "No, but" position, Eizenberg says. "If you are like me, you are completely frustrated by too many regulations," she asserts. "We are changing the game from being one of competition, and priority of who is in charge, to one of attacking the issue as a team. There's a kind of slyness at play: how do you get what you want? It's an issue of seeing the whole to do something more."

It means the firm approaches every new commission from a curious and open-minded vantage point. "We have a reputation for working with affordable housing but I want to make it clear we are not saints," she says. "We like people, and we don't really care what's in their pocketbook (wallet)."

"By the time you make a building stand up, you count everybody as your client, not just the people in power," she says. "I don't really care who I'm working for: we are income-blind. I think it's really important to treat all people as if they are entitled to the building, and you apply the same set of sensibilities and criteria for success as you would to any project."

In the case of KEA's 28th Street Apartments project in Los Angeles, the needs of the building's intended users were equally as important as those of the broader community. Dating from 1926, the rundown but heritage-listed YMCA was designed by a prominent

early African-American architect, Paul R. Williams, and is a rare example of its type from the era of segregation. The design for its adaptive reuse – into a supportive housing facility and community centre for youth transitioning out of foster care and special needs adults – had to highlight the building's history while bringing the facilities up to contemporary standards.

The new addition to the rear of the 28th Street Apartments features a series of steel screens on its northern and western facades which provide a thought-provoking connection. ➔



"I think it's really important to treat all people as if they are entitled to the building, and you apply the same set of sensibilities and criteria for success as you would to any project"

Sited within a residential neighbourhood, The Thinkery's bright red corrugated steel-clad skin piques the curiosity of visitors





ABOVE LEFT AND RIGHT: The Thinkery encourages children and their families to explore and invent new ideas, and promotes the ideal of lifelong learning

BELOW LEFT AND RIGHT: The Otis Booth Campus typifies KEA's approach to design, which aims to always be informal and inclusive

"Communities often think that the way you dignify the past is by imitating the old, but we realised we could make the historic building's heavy masonry feel more distinctive with a new section that had a resonant but different identity," Eizenberg says. "We decided to enclose the new section in lightweight screens to contrast with and emphasise the heft of the original. The screens incorporate a secondary pattern based on the historic building's filigreed medallion reliefs, which feature famous African-Americans, to create a connecting narrative.

"The screens were not produced using a fancy water jet-cut system, this is punched steel," she adds. "We found out that for a very small upcharge you could punch out but not punch through the panels and those projecting pieces make the filigree

patterns enable us to impart a sense of richness to the building in an affordable way."

The 28th Street Apartments are typical of KEA's projects, which often combine multiple stakeholders, complex tax offset and financial arrangements, and heritage overlays. Doing so has helped Eizenberg to refine her ideas about where to find joy in the practice of architecture. "We really like the strategy part that sets up what you can do, and we really like making places that make everyone feel welcome," she says. "Informality and inclusivity is the starting point for how we think about things. The authority is taken out of it."

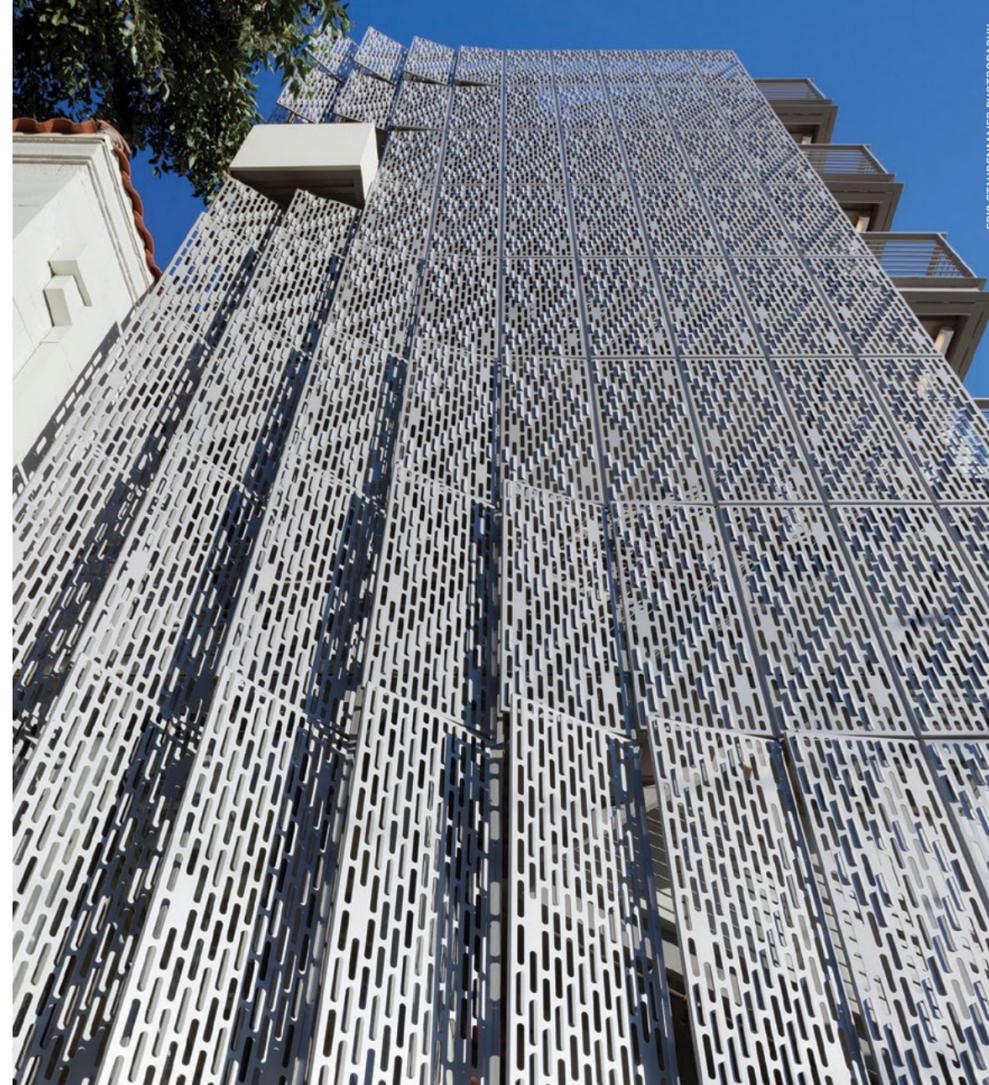
She says that a recent project – one that has been hailed for its sense of openness and approachability – is a prime example of KEA's approach.

"I guess I am still romanticising about the Australia of my youth. I'm very anti-authoritarian. I got that from my dad; he was a larrikin"

pattern. The angle of the light makes the projections appear and disappear, creating an ephemeral effect.

"These punched steel skins are made with a simple machine," Eizenberg continues, "but in projects with tight budgets, where the default inexpensive material is texture-less stucco, which would look weak relative to the masonry original, these

"As architects we can't do it all: we need to understand how all the processes and regulations work to use the system to our advantage," Eizenberg says. "The best example of how we think is the Otis Booth Campus [which provides services to children and families exposed to violence]. We wanted to work out what the real issue was, and then re-frame it from a user point



ABOVE AND BELOW: The inexpensive punched steel screen on the 28th Street Apartments both contrasts with and references the adjacent heritage YMCA building

of view, not just start from a brief that said: 'We need to make a building and these are the spaces we need.'

"When you flip the right switch: you turn something that's just about fulfilling what's expected into something that does so much more," she says. "And it's not us working alone towards that goal: for example in this case we were working with savvy people who wanted the most they could get for the kids, but they were not yet clear on what was possible. You sense it when you get that kind of client."

As Eizenberg announced at the start of her presentation, KEA also produces work outside the social welfare sector, and the firm's free-spirited approach to design can be gleaned from observing two museum projects. The Children's Museum of Pittsburgh (with Perkins Eastman) and The Thinkery in Austin, Texas (with STG Design) both prioritise concepts of exploration and invention.

Described as "a place where science and families play side-by-side", The Thinkery claims to be "a foundry for a new generation of innovators and creative problem-solvers... and a heck of a good time". Located in a residential neighbourhood beside a playground and a lake, the building's attention-grabbing red corrugated steel-clad form aims to ignite the imaginations of young visitors.

The corrugated red metal cladding draws on a factory and creative workplace sensibility to provide an exploratory setting that appeals to all ages. "I think the Thinkery has accomplished a whole change of mindset about what's cool," Eizenberg says. "Often parents feel they have to have the answers, but here the staff can help with that – not to have the answers, but to prompt the right kind of questions. The building is a backdrop for that kind of learning. And we're all learning, all the time."

Having built projects all over the US, Eizenberg admits that different cities necessitate different approaches – downtown LA is not the same as Santa Monica (20 kilometres away), which is dissimilar to Austin, Texas – but says there is an element of Australian-ness that pervades her design thinking, no matter where KEA is working.

"I think Australians have changed culturally since we left, when I was 25," she says. "I'm not sure if the change is to do with me or Australian culture, but I think Australia now aspires to be thought of as important rather than free-spirited, which is the attribute I continue to cherish. I guess I am still romanticising about the Australia of my youth. I'm very anti-authoritarian. I got that from my dad; he was a larrikin."

She says that her father, who immigrated to Australia in 1924 with his parents from Russia when he was two years old, was more "Australian" than his children who were born there. "My dad left school at 14 and he was self-made; he did very well and I was very proud of him," she says. "He was always very conscious of people, and I think that humanitarian aspect has stayed with me.

"It is not surprising that I'm re-framing the issue of social responsibility not as a 'we should' or 'we must', but as an issue of 'why not?' I don't understand why it's considered a do-gooders thing." SP



Southern Cross Station's distinctive undulating roof was a marvel when first unveiled a decade ago, but in reality few were able to experience a complete view of this outstanding project other than via photographs. A new lightweight commercial building now enables anyone to enjoy one of Melbourne's architectural masterpieces.

Words **Micky Pinkerton** Photography **John Gollings; Bob Seary**

ON TRACK

ARCHITECT
Grimshaw

PROJECT
699 Bourke St

LOCATION
Melbourne, Victoria

Back in 2006 architectural practice Grimshaw was basking in the glow of extensive praise for Southern Cross Station and the trophy cabinet was bursting with a swag of national and international awards. But the job was not done. The brief included a commercial building at the station's western edge: look closely at any bird's-eye photo from the time and you can see the outline of a rectangular base, patiently awaiting a building.

Sitting 24 metres above the rail corridor and with an eight-metre rise from street level to the entry of the building, it's easy to think that the project was delayed due to its complexities. In reality a change in owners and the shifting economic landscape saw the building re-thought.

"The original PPP consortium had to work out ways to create other revenue above and beyond the station, and this commercial building was part of that mix," says Grimshaw partner Neil Stonell.

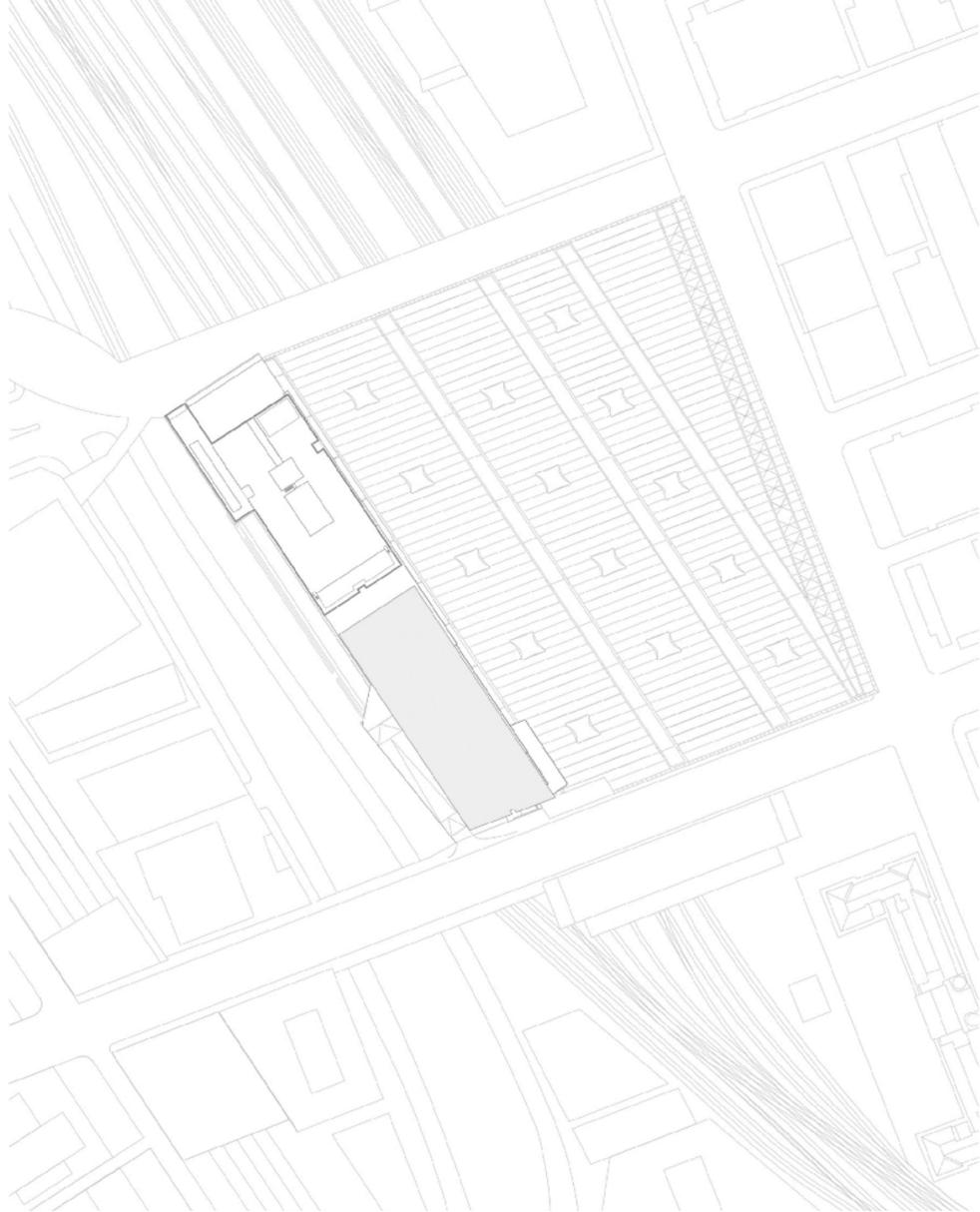
"The initial design for the building was as a concrete frame structure, but when Mirvac took possession some years later they looked at options to increase floor space. That's when it became a composite steel structure, which effectively allowed us to lighten the building and add stories on the deck. By using steel we were able to get more value out of the site and maximise returns. Adding another couple of floors was hugely important to the business case."

Beyond the economics of the project, the design of 699 Bourke responds to Southern Cross Station in both aesthetic and practical ways. From the outset the architects' vision for the commercial building was a timeless and elegant structure which would act as an understated counterpoint to the busy transport hub. It wasn't necessarily about not wanting the new building to compete with its predecessor, but more about having it play the calm and constant bass note to the surging waves of the station's roofline.

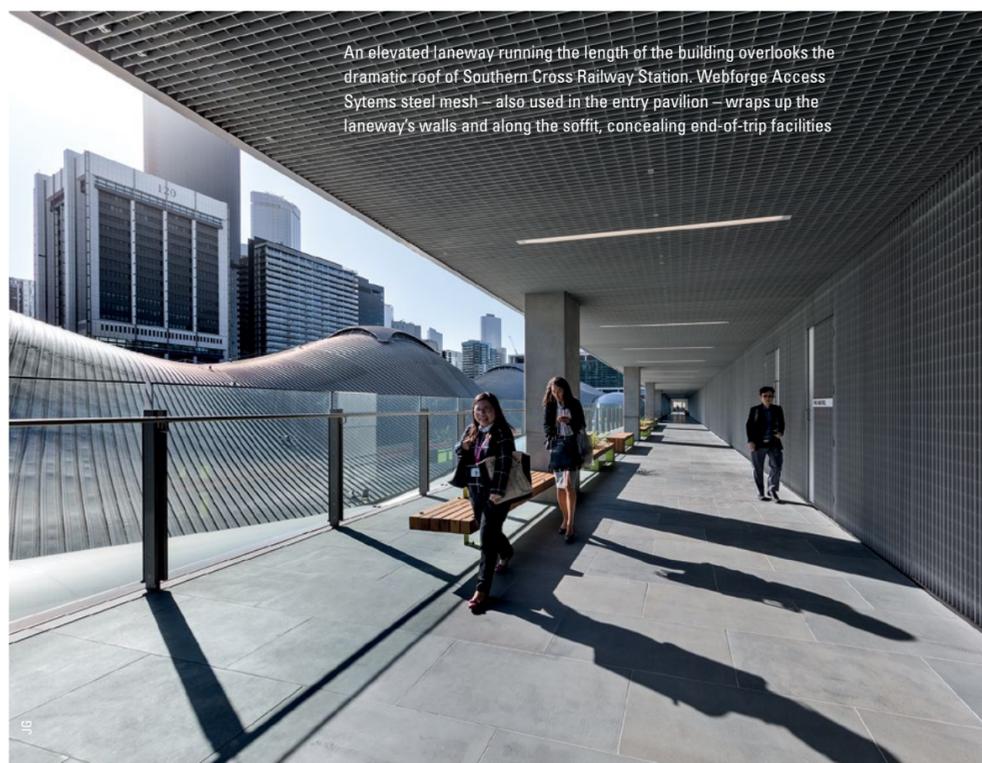
Where the building's envelope acknowledges the iconic urban context, its inner workings take more prosaic and subterranean considerations into account to overcome the load, vibration and existing infrastructure issues associated with this complex air rights site. The station works to a 40-metre x 40-metre grid and while the service deck (or transfer structure) upon which 699 Bourke rests talks primarily to these ordinates, it wasn't the only grid the architects had to think about.

"The columns that support the transfer structure are on a 20-metre x 20-metre grid, and the deck consists of a series of concrete-filled 2-metre x 2-metre steel shells, and post-tensioned beams spanning 20 metres," explains Stonell. "When you move up into the building itself above that deck, the grid also had to work with a parking grid and a commercial office grid, so the building itself is nominally on a 10-metre x 10-metre grid in order to provide typical column-free office spaces."

A bolted network of 610 UB primaries and 460 UB secondary beams form the essential frame of the building to these 10, 20 and 40-metre intervals. It is therefore no surprise that the building uses approximately 2,800 tonnes of steel across more than 10,000 members, including welded beams



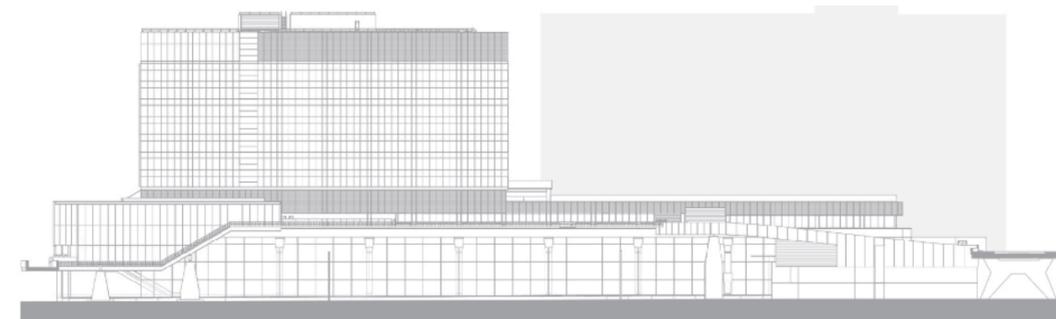
CONTEXT PLAN



An elevated laneway running the length of the building overlooks the dramatic roof of Southern Cross Railway Station. Webforge Access Systems steel mesh – also used in the entry pavilion – wraps up the laneway's walls and along the soffit, concealing end-of-trip facilities



ABOVE: 699 Bourke St sits 24 metres above the rail corridor and the brief required the architects and consultants to overcome the load, vibration and existing infrastructure issues associated with the air rights site



WEST ELEVATION

"By using steel we were able to get more value out of the site and maximise returns. Adding another couple of floors was hugely important to the business case"

and columns made from BlueScope 250 and 350 grade XLERPLATE® steel, Orrcon Steel Line Pipe and hot-rolled beams and structural sections such as angles, flats and channels made by OneSteel.

The use of steel had further advantages beyond the two additional stories – topped off by a roof made from COLORBOND® steel in LYSAGHT KLIP-LOK 700 HI-STRENGTH® profile in the colour Dune®, which also adorns the plant enclosure walls which were formed with a composite slab made from Low-Glare Coated (LGC) DECKFORM® steel, rather than a purely concrete deck. With the station fully functional throughout construction, speed of erection was another chief consideration. The architects worked closely with the engineers to devise a construction option that took maximum advantage of the minimal

overhead access to the site, which was limited to a slim time window in the middle of the night when no trains passed through platforms 13 to 16.

"The occupations at night were effectively only four hours long, so all the components were made in large pieces off-site and transported to site, partially assembled in Wurundjeri Way and then craned in under occupation at night," says WSP group director Peter Hindmarch. "The steel shells were self-supporting and acted as formwork for the concrete components. In the final case the concrete and steel components acted compositely, but the whole thing wouldn't have been able to be constructed without the steel."

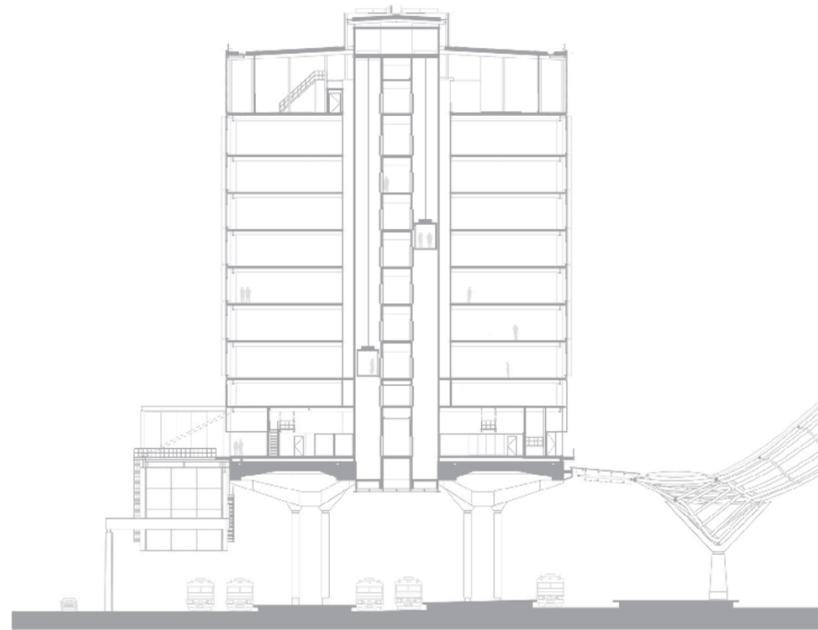
The matrix building frame also lent itself to an adaptable, modular approach to the internal

arrangement of spaces. A change in lessees during the design phase led to the inclusion of a series of atria between stories, stepped regularly to provide sizeable openings between floor levels.

“Obviously having a steel structure gave us added flexibility as the building was being built and being designed for the new occupants,” says Stonell. “There was some flexibility in adjusting things to accommodate the new, progressive design.”

Quite apart from the complex structural aspects of the build, the entry to the building had to navigate some less-than-ideal public ingress considerations. The northern entry pavilion cantilevers from the western side of the building and has to negotiate an eight-metre rise from street level to lobby. Providing a direct connection from Bourke Street up to this entrance space was never going to be easy, but consistency in material selection helped build the bridge between the two.

This 14-metre-high lightweight steel and glass pavilion contains the escalators, lifts and stairs for vertical access into the main lobby. Supported at only two points over the rail, the cathedral-like pavilion space provides a fitting entry moment as well as a representative case study of the structural innovation evident throughout the project. In being open to the street as well as the station, durable materials were required and this entry space sees the introduction of the WEBFORGE® Access Systems mesh product made from galvanised mild steel which carries through into the public walkway that runs between Bourke and Collins streets.



SHORT SECTION FACING NORTH

“A steel structure gave us added flexibility as the building was being built and designed for new occupants”

Described by Stonell as ‘Melbourne’s newest laneway’, this north-south connection was originally envisaged at station level but it’s to the city’s advantage that it was re-worked into an elevated and open space. The laneway is lined with the same open grillage of galvanised WEBFORGE® Access Systems steel mesh used in the entrance atrium, which wraps up the walls and along the soffit. Running almost the entire length of the public walkway are more than 275 bike stores and 360 lockers. The openness of these end-of-trip facilities provides a new benchmark for quality and amenity – and not just because of the incredible view of the station’s roof.

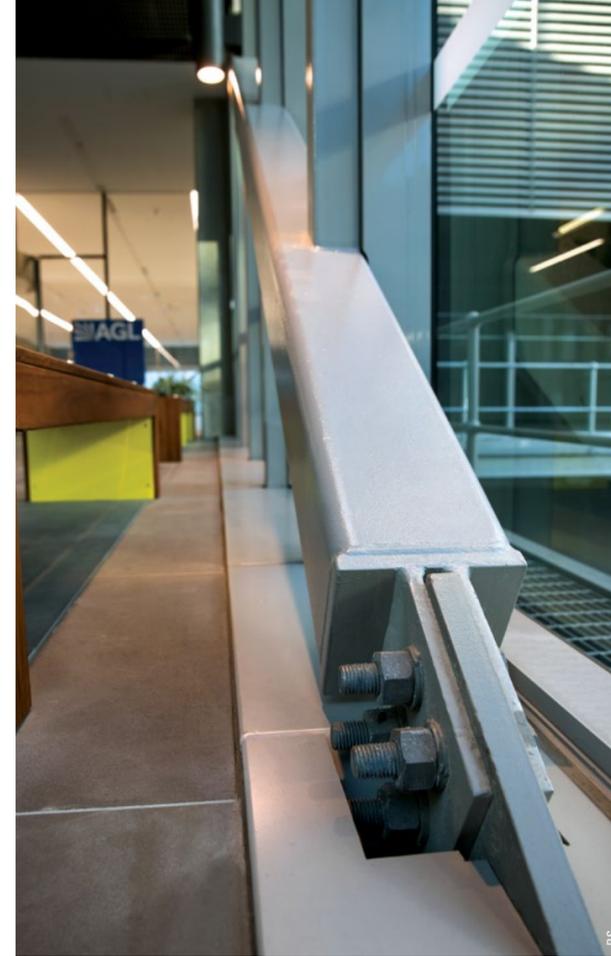
“Most bike stores are windowless, airless rooms whereas here you’ve got daylight flooding in via the use of the mesh and stretching most of the length of the walkway,” says Stonell. “It has to be a secure environment but the mesh allows

it to also be open. In addition to bike racks and lockers along here there will eventually be a café and the introduction of artwork into the laneway. There are already active information panels which give facts and figures about the building, including its energy consumption.”

As Grimshaw’s first commercial building in Melbourne it sets a high bar for future projects in the precinct, but they won’t be waiting long. 699 Bourke’s sister building, 664 Collins, has already started construction and when it is completed in 2018 it will bring the Southern Cross Station development masterplan to a conclusion. It will have been a long journey for all involved, undoubtedly, but a great one. And, as with all station precincts around the world, the site will continue to evolve with additional transport, retail and commercial developments to suit the ever-increasing urban landscape in this part of Melbourne. **SP**



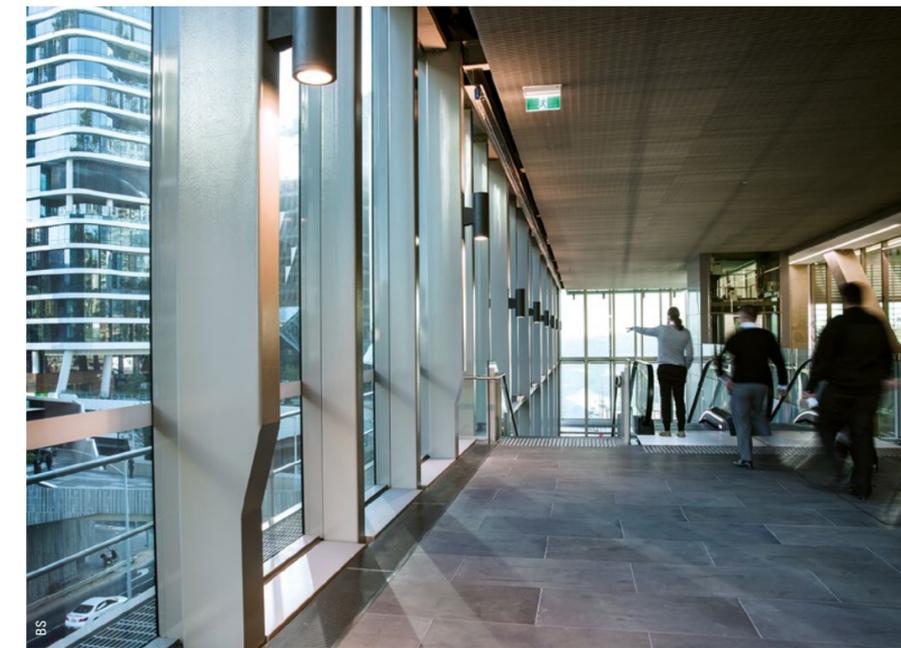
PROJECT 699 Bourke St **CLIENT** Mirvac **ARCHITECT** Grimshaw **PROJECT TEAM** Neil Stonell (partner in charge), Matthew Holloway (project director), Damon Van Horne (associate/project architect), Paul Quang, Rebecca Walsh, Gilbert Yeong, Tam Dao, Greg Pitts, Dean Dyson, Michael Chadwick, Cameron Conwell, Andrew Cortese, Jason Embley, Keith Brewis, Alison Potter, Timothy Cox, Louise Jarvis, David Churcher, Oliver Hessian, Oliver Ness, David Crapp, Alistaire Hudson, Duncan Munro **STRUCTURAL ENGINEER** WSP Structures, Kevin Winward, Peter Hindmarch, Harrison Chua, Maan Shaban, Luke Turner **FACADE ENGINEER** BG&E **HYDRAULIC ENGINEER** CJ Arms **BUILDING SERVICES ENGINEER** WSP Group **BUILDER** Mirvac **STEEL FABRICATOR** GVP **SHOP DRAWING CONTRACTOR** Ingen3D Steel & Facade Detailing **CLADDING CONTRACTOR** IBP Lamberts **LANDSCAPE ARCHITECTS** Oculus **PRINCIPAL STEEL COMPONENTS** The building uses approximately 2800 tonnes of steel across more than 10,000 members, supplied by BlueScope Distribution. Structural steel includes universal beams and columns made from BlueScope 250 and 350 grade XLERPLATE® steel in various dimensions, Orrcon Steel Line Pipe and hot-rolled beams and structural sections such as angles, flats and channels made by OneSteel. Roofing and plant enclosure wall cladding is made from COLORBOND® steel in LYSAGHT KLIP-LOK 700 HI-STRENGTH® profile in the colour Dune®. Webforge Access systems mesh featuring at the public entrance, lobby, public walkway and bike stores is made from mild steel **PROJECT TIMEFRAME** June 2012 – April 2015 **AWARDS** 2016 Australian Institute of Architects Victorian Chapter, COLORBOND® Award for Steel Architecture – Shortlisted **BUILDING SIZE** 35,000m² GFA **TOTAL PROJECT COST** \$120 million



ABOVE: The building uses approximately 2,800 tonnes of steel across more than 10,000 members



TOP RIGHT: Supported at only two points over the rail, the lobby pavilion provides a tangible exemplar of the structural innovation evident throughout the project



RIGHT: A bolted network of UB primary and secondary beams form the essential frame of the building to a rhythmic grid which draws its coordinates from the station’s base grid

BELOW: An area of rooftop is devoted to a highly utilised staff communal area which is protected from prevailing winds and topped with a steel canopy



PANEL SAYS

Sited at the junction of Melbourne’s CBD and Docklands, alongside the city’s Southern Cross Station, 699 Bourke Street occupies air space above the railway line: a site that was ‘created’ using 2,800 tonnes of structural steel to construct a platform. Envisaged by Grimshaw Architects in the station’s masterplan, the new building’s crisp and streamlined form provides a strong contrast to the billowing dune-like roofscape of the iconic station. A 14m-high lightweight steel and glass pavilion cantilevers off the deck, providing pedestrian access to escalators, lifts and stairs that lead to the main lobby. The entire project attests to the ingenuity of architecture and engineering, disciplines that are capable of creating value where none previously existed

At this regional art gallery, Brisbane architects PHAB hybridise old timber with dramatically coloured new steel to make something unique.

Words **Myffy Daw** Photography **Paul Bradshaw; Manson Images**

RED COAT



ARCHITECT
PHAB ARCHITECTS
PROJECT
The Condensery: Somerset Regional Art Gallery
LOCATION
Toogoolawah, Queensland

It's a mark of the best architects that they show restraint. They know what not to do, when not to act, how far to go, but more importantly, when to stop. This is especially true of architects working in adaptive re-use: when faced with a building that has had a long and interesting life, and wears the scuffs and scars of that life honourably, they know that the real challenge is to not stuff it up.

The most exemplary adaptive reuse projects (think for example of Sydney's Carriageworks, by TZG architects – see *Steel Profile* 117) manage this balance beautifully – making a building safe, accessible and useful for its new purpose, but not cleaning it up too much, not removing the detritus and marks which give it character, not killing it by making it too shiny. They don't try to 'restore' a building to some mythical moment of perfection in the past, but rather they value the long duration of its life, with all the physical wear and weathering that it brings. Where a good architect does need to make insertions and interventions, these are carefully marked as new work, so as to avoid pastiche. Such restraint is a kind of architectural decorum – the demonstration of respectful good manners in relation to an existing building.

In adapting The Condensery: Somerset Regional Art Gallery from a packing shed into a sophisticated contemporary gallery space, PHAB Architects (Brant Harris and Ashley Paine) have shown that they have the restraint, decorum and subtlety that the project called for. By employing a new steel structure they were able to rescue a frail, but important, timber building. And by using a new steel cladding made

from COLORBOND® steel in the highly distinctive colour Manor Red®, they were able to provide the gallery with a characteristic visual identity.

PHAB had some promising, but rather difficult, material to work with. Located amidst the rolling hills and dairy farms of the Somerset region north-west of Brisbane, the existing building was a large, timber-framed weatherboard-clad shed with a beautifully direct, exposed structure and the light and loftiness of a church hall. It had originally been part of the much larger Nestlé and Anglo Swiss condensed milk factory, an impressive composition of buildings and chimneys arranged around a railway siding that dated from 1898. Unfortunately, almost all of these buildings burnt down in 1951 (the factory itself had ceased producing condensed milk in 1929). The timber packing shed, along with the concrete floors of some of the other buildings, were all that remained.

Curiously, the building was not heritage listed at either local or state level, despite the significance of the factory in the history of the town of Toogoolawah and the local area, and the architectural qualities of the remaining shed. Instead, it had for many years been the workshop and storage space of a local plumber. Over the years a new lean-to had been added to the southern side and termites had invaded the structure, leading to the whole western end of the building collapsing. During this period, the building had been the subject of much local debate and deliberation. With an important position close to the entry point to the town, and with its status as "the condensed milk factory which gave

Toogoolawah its reason for being" according to one historic document, it was a significant building without a civic function, slowly mouldering away in a cow paddock.

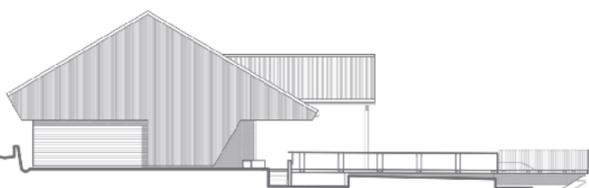
Locals – including the very active Toogoolawah History Group – lobbied the local council to buy the building and turn it into a community centre of some mixed-use description. But it was not until 2012, when heritage consultant Benjamin Gall gathered a group of engineers, architects and a quantity surveyor to do an initial feasibility study for adaptively reusing the building, and the council was then able to use these documents to apply for state and commonwealth funding, that the project as we see it today had its origin.

PHAB was involved in that initial feasibility study and, although the brief evolved and changed over time, in the end the architectural challenge was clear: to shore up the existing structure, build a new western end including amenities and plant, and adapt the largely intact industrial interior to the complex demands of a climate-controlled, highly serviced art gallery.

For this, PHAB made extensive use of steel, both structurally and as cladding. Steel had the advantage of being invulnerable to termites – an important consideration in a region where every timber fencepost seems to sport a termite nest, and given the original floor was being retained (allowing possible termite access through the old and cracked slab). Steel cladding was cost-effective, with low maintenance needs, and would still allow



"It was a significant building without a civic function, slowly mouldering away in a cow paddock"



WEST ELEVATION



EAST ELEVATION



SOUTH ELEVATION



TOP LEFT: The architects have subtly modulated the depth and structure of the roof plane – made from COLORBOND® steel in Apex Apspan 700 profile and Stramit® Corrugated profile, in the colour Manor Red® – which is slimmer above the eaves and thicker above the built envelope

TOP RIGHT: Precise insertions carefully brace the old timber truss structure with new steel and a series of new, fine, tubular steel columns subtly define a southern edge circulation corridor

BOTTOM LEFT TO RIGHT: The project's most spectacular gesture is its western facade; a composition in the landscape showcasing the Manor Red® colour scheme. A partially covered outdoor terrace allows for outdoor functions and makes use of remnant concrete slabs

A subtle modulation of red and white shades
The gallery entrance has been pushed back within the envelope of the original shed, allowing for a new covered foyer space

BELOW: The building had been added to over the years, and the whole western edge had collapsed due to termite attack. For many years it was the workshop and storage space of a local plumber



PANEL SAYS

A lone reminder of a once-thriving dairy industry has been repurposed as a community arts space and workshop at Toogoolawah on Queensland's Sunshine Coast. The town grew up around its Condensed Milk Factory which was established in 1898 and destroyed by fire in 1951. The factory's sole remnant – a packing shed built in the 1920s – has been reborn thanks to a thoughtful overhaul and a new cloak of COLORBOND® steel cladding in the colour Manor Red®. Whilst the architect's deft sensitivity is evident in the treatment of the existing fabric, the sympathetic yet playful COLORBOND® steel-clad western addition provides an expression of delight that responds to program and context

a subtle modulation of colour and some formal exuberance and 'shape making' in the building's celebrated western facade. Furthermore, steel structural support members could be fine enough to unobtrusively sit behind existing timber framing.

The architects made a series of precise insertions which carefully distinguish the new additions from the original material. Harris describes how the reinforcing of the weakened timber trusses included judicious patching with steel plates (painted a fresh shade of white which differentiates them from the rest of the truss), a new face-fixed parallel flange channel reinforcing the top chord, new steel ties that brace the whole structure back to the rebuilt western end, and a new pair of steel columns on each truss line.

This was not without challenges: Paine describes how the original timber structure was warped and bent in places, and far from regular in its spacing and dimensions. This kind of structural idiosyncrasy requires exceptionally precise measurement if the duplicate steel structure is to be tailored and customised to fit each truss individually. Nevertheless, taken all together, the whole is

a synthesis of the old timber and the new steel structure – a composite engineering system.

But more than just a pragmatic structural solution, Harris and Paine note that the fine, tubular steel columns are an attempt to add to the architectural qualities of the interior – subtly defining a circulation corridor down the southern edge of the gallery. Likewise, the re-cladding and insulation of the roof was completed from the outside in, such that when standing inside the building, looking up, you can still see the original short-sheet corrugated steel that made up the once single-skin roof. This now dark-grey-from-age galvanised steel complete with its historic LYSAGHT® emblems effectively acts as a ceiling, with a whole additional layer of steel purlins, thick insulation and, above, new roof sheeting made from COLORBOND® steel in Apex Apspan 700 profile, in the colour Manor Red®.

There are restrained design touches even in how the architects have managed the plane of the roof – in the sections above what is now an air-conditioned envelope, the roof has the necessary thickness to accommodate the additional insulation and structure.

But at the eaves and above spaces which are not air-conditioned, the profile and structure is deliberately made slimmer through the use of small battens laid directly onto the original sheeting, and the use of Stramit® Corrugated profile, again made from COLORBOND® steel in the colour Manor Red®. This subtle change in profile and structure works to reduce the fascia depth while ensuring that the new roof is in keeping with the building's original lines and form.

However, the big, spectacular gesture in the project is the western facade which features walling made from COLORBOND® steel in Apex Apspan 700 profile.

It is a composition in the landscape, showcasing the Manor Red® colour scheme which has become the project's trademark – with both the roof and the western wall being in this resplendent colour. Harris tells a story of the steel contractors joking that "you've built it the wrong way around" – namely that the building was facing the wrong way, with its prettiest face to the surrounding paddocks rather than towards the main entry and the town. But it is precisely this western view, of an iconic red shed in a green landscape, weatherboards played off against profiled steel sheet, that has attracted attention from the local and international architectural media, as

well as that of The Australian Institute of Architects, winning a State Award for Public Architecture, the Queensland 2016 COLORBOND® Award for Steel Architecture, as well as a Commendation at the Sunshine Coast Regional Architecture Awards.

These accolades seem somewhat of a surprise to the architects – who are pleased but also slightly bemused at all the attention the project has received. But really it's no surprise – it's a sensitive building with just the right amount of exuberance, and the whole is very deftly handled. The romance and patina of the original has been retained. In short, they didn't stuff it up. **SP**

PROJECT The Condensery: Somerset Regional Art Gallery **CLIENT** Somerset Regional Council **ARCHITECT** PHAB Architects **PROJECT TEAM** Brant Harris, Ashley Paine **HERITAGE** Converge Heritage + Community **LANDSCAPE ARCHITECT** Landscapology **STRUCTURAL, MECHANICAL, ELECTRICAL & HYDRAULIC ENGINEER** OPUS International Consultants **CERTIFIER & ENERGY EFFICIENCY CERTIS** QUANTITY SURVEYOR Colin Woodhouse **BUILDER** Be! Building Group **CLADDING CONTRACTOR** White Commercial Roofing **PRINCIPAL STEEL COMPONENTS** Roofing and cladding: Original short-sheet corrugated roofing (now interior ceiling) made from LYSAGHT® galvanised steel. New roofing and cladding made from COLORBOND® steel in Apex Apspan 700 profile and Stramit® Corrugated profile both in the colour Manor Red®. Structural steel: Columns: 150 CHS (150x75 RHS behind gallery walls); Truss Top Chords: 200 PFC; Bottom Chord Ties: 125 PFC **PROJECT TIMEFRAME** Design and documentation from December 2013 to June 2014. Construction from August 2014 to August 2015 **AWARDS** 2016 Australian Institute of Architecture Queensland Awards – COLORBOND® Award for Steel Architecture and State Award for Public Architecture. 2016 Australian Institute of Architecture Sunshine Coast Regional Awards – Commendation. 2016 Dulux Colour Awards: Grand Prix (overall winner). Winner: Commercial Exterior category Commendation: Commercial Interior – Public Space and Hospitality category **BUILDING SIZE** Indoor: 420m². Outdoor covered (terrace and platform): 100m² **TOTAL PROJECT COST** \$1.9 million

SHIP SHAPE

The strong yet light steel construction of naval vessels has been mirrored in the unique facade of a new museum building which celebrates them.

Words **Micky Pinkerton** Photography **Paul Bradshaw**

ARCHITECT
FJMT

PROJECT
Australian National Maritime Museum
Waterfront Pavilion

LOCATION
Darling Harbour, New South Wales



“Controls are good because you have to work with them,” declares James Perry from the deck of HMAS *Vampire*, a 118-metre Destroyer at anchor in Sydney Harbour. He could be a naval captain extolling the character-building benefits of the tightly-confined maritime life on board the ship, or its submarine counterpart, *Onslow*, moored nearby.

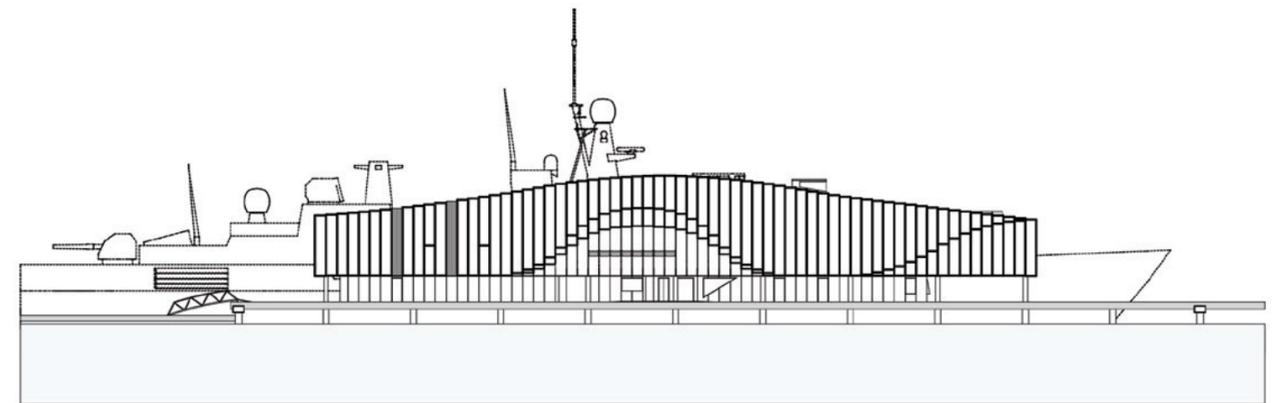
Instead Perry – an architect at Francis Jones Morehen Thorp (FJMT) – is referring to a slither of steel that sits between the two vessels, a twisting pavilion complete with control panel that is the latest building in a series that collectively make up the Australian National Maritime Museum (ANMM) in Darling Harbour. It’s been some time since *Vampire* and *Onslow* saw active service but their essential characteristics continue to impose

“The fifth elevation was paramount because of the significant corporate buildings looking back on the building. We needed a roof profile that was incredibly neat”

constraints on those who work with them. Perhaps only an architect could see those limitations in such a positive light.

And controls there were aplenty on this project. A skinny pier with minimal access in one of Sydney’s busiest precincts. Zero scope to put services beneath the building. An iconic parent building just to the west – a Bicentennial Philip Cox no less.

A tight budget. Multiple stakeholders. Some might argue that this is standard fare for architects, living as they do in the extreme problem-solving world that is design. The ANMM Waterfront Pavilion, however, takes those challenges to new levels, fitting tightly as it does between two large, hard objects that are constantly moving, side to side with the currents and wind, and up and down with the tide. ➤



NORTH ELEVATION

Vampire and *Onslow* – decommissioned in 1986 and 1999 respectively – have been in situ at Darling Harbour for more than a decade. They form a key part of Sydney’s Maritime Museum experience in that they provide visitors with access to the defence ship and submarine environments, taking the conceptual premise of museum exhibits to a tangible, real-world level. Serviced for many years by a temporary ticket booth and nothing more, the museum guardians engaged FJMT via a selected tendering process to deliver a permanent access facility. The brief sought a building that moderated the physical space between the vessels externally, and that enhanced the on-board experience with appropriate interactive displays internally.

“The museum board was visionary about what they wanted and was very supportive,” says Perry. “They wanted something different, but there were a lot of things in play and that presented quite a challenge. This building needed to have its own identity but at the same time not overwhelm either the submarine or the warship.”

Preliminary discussions led to a design premise that ensured the building could occupy its place and respect the main maritime building, but more than anything it had to respond to the vessels. It’s ironic, then, that two such clinically engineered and man-made entities are the controls to such an organic shape, a stretched pipe rhythmically punctuated by vertically-ridged segments. The form distorts

at its middle, physically submitting in shape to the conning tower of the submarine and the bridge of the destroyer. This deferential nod to the sea craft produces a dynamic and elegant structure from every angle and distance.

“We started with a tube and then looked at the way you could articulate that tube, which brought a few things into play,” says Perry. “It was about material selection, it was about scale, it was about having some height and understanding the profile of these two vessels. They’re not flat – they have scale and they have variation. The building is almost pinched at the top, and that was as a result of that form development. The fifth elevation was also paramount because all those significant corporate buildings on the city fringe look back on this building. We needed a roof profile that was incredibly neat.”

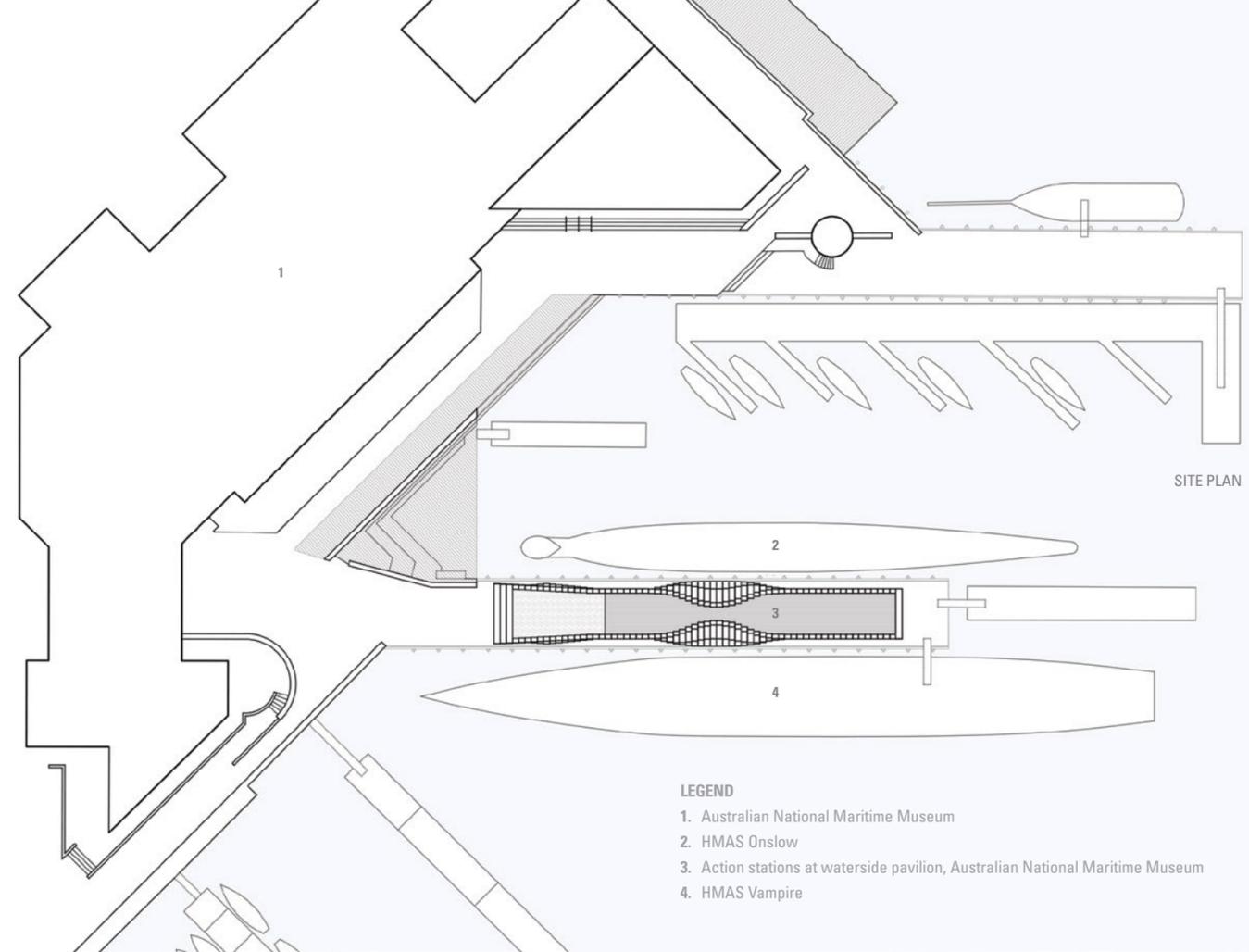
From the outset, product selection was key to providing that neat roof solution. The design

required a material that could meet the light-weight structural requirements of the project and its tight budget, while also meeting the aspirations the architects had for the facade. Working to the mantra that controls can lead to beneficial outcomes, FJMT looked to Kingspan’s BENCHMARK Evolution insulated wall panels made from corrosion-resistant COLORBOND® Ultra steel in the colour Woodland Grey® to meet the very particular demands of their design thinking.

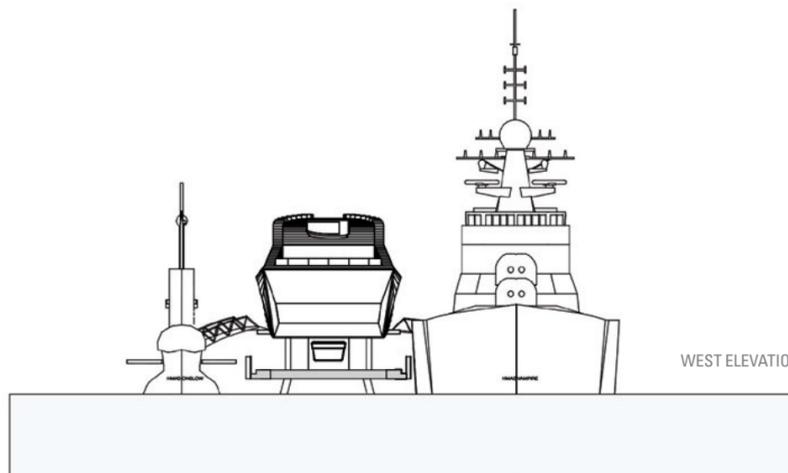
“What was great about the Kingspan product was the way it worked to a modular-type approach,” says Perry. “We were looking for something that we could clad the whole building in without having a whole series of horizontal joints. The Kingspan BENCHMARK Evolution panels’ structural properties allowed us to have incredibly long panels, up to six or seven metres long, which gave us basically one continuous long panel from ground level to the roof, and it also worked effectively as an interface with the glass.”

“The architect, engineer and cladding contractor worked closely with Kingspan to resolve the design complexities of the rotating panels”

The pavilion sits between two decommissioned naval vessels which move up and down with the tide and side to side with the wind. The design therefore had to respond not only to the fixed – but in particular the variable – ordinates of the site



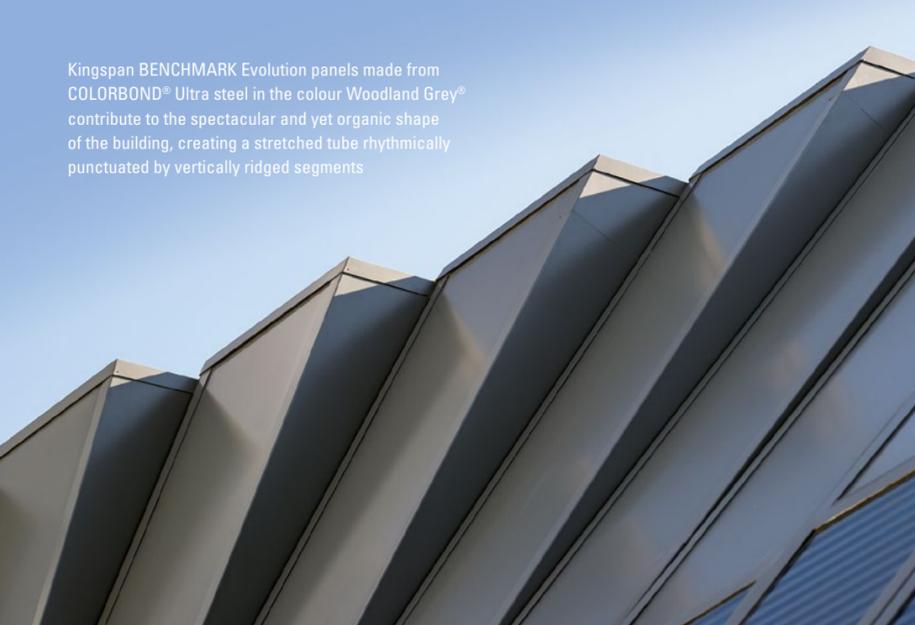
- LEGEND**
- 1. Australian National Maritime Museum
 - 2. HMAS Onslow
 - 3. Action stations at waterside pavilion, Australian National Maritime Museum
 - 4. HMAS Vampire



ABOVE LEFT: The interior of the building houses a series of interpretive and fixed displays which bring to life the at-sea naval experience

ABOVE RIGHT: The Kingspan BENCHMARK Evolution panels’ structural properties allowed one continuous long panel from floor to ceiling, which also worked as an effective interface with the glazing

Kingspan BENCHMARK Evolution panels made from COLORBOND® Ultra steel in the colour Woodland Grey® contribute to the spectacular and yet organic shape of the building, creating a stretched tube rhythmically punctuated by vertically ridged segments

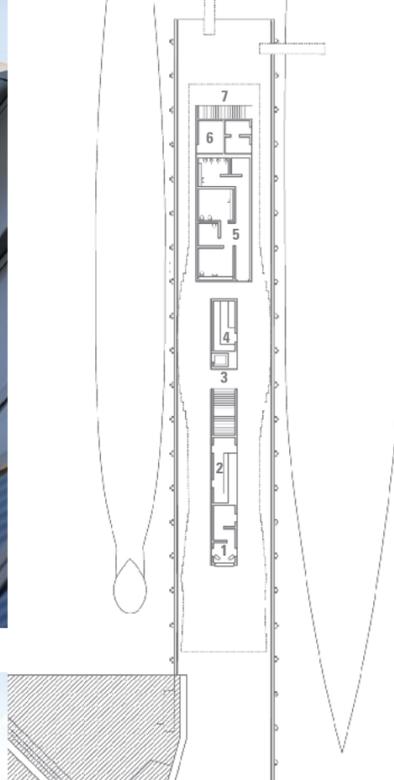


PANEL SAYS

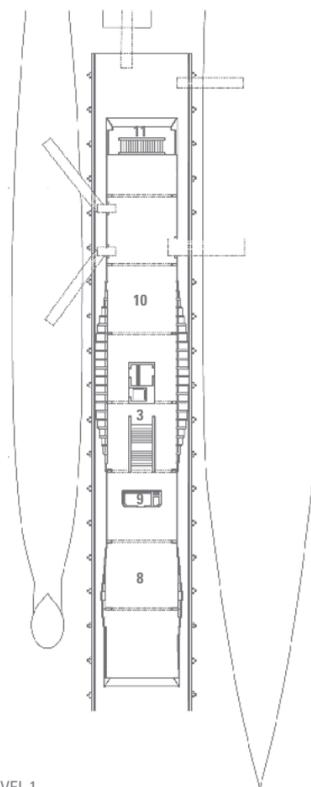
Built to mark the centenary of World War I and commemorate 100 years of Royal Australian Navy service, the Australian National Maritime Museum's new Waterfront Pavilion occupies a narrow wharf between a navy destroyer and a submarine. Taking its design cues from those vessels, and mindful of their propensity to move with the current and tide, the new building's distinctive appearance results from rhythmically offsetting composite panels made from COLORBOND® Ultra steel in the colour Monument® to create a twisted carapace. Like its ocean-going neighbours, the pavilion appears to float in mid-air, creating a striking new addition to this busy Darling Harbour precinct. Its organic and distorted form is an effective contrast to the more romantic shed nearby, which houses the main museum building

ABOVE: The Pavilion includes a popped-through projector room, which has already been used to great effect during the Vivid Festival for light displays on the roof of the main Maritime Museum building, a Bicentennial project by Cox Partners

BELOW: Bespoke single-ridged corners were used and the panels were installed vertically, using secret fixing. The use of pre-formed corners simplified the construction process on site and offered thermal continuity, while the secret fixing achieved crisp, clean lines



GROUND FLOOR



LEVEL 1

LEGEND

- | | |
|-------------------------------|---------------------------------------|
| 1. Ticketing | 7. East terrace stairs |
| 2. Lockers | 8. ICE immersive experience |
| 3. Entry and stairs | 9. ICE control room |
| 4. Catering | 10. Multi-use space and vessel access |
| 5. Parents room and amenities | 11. East terrace (external) |
| 6. Plant and services | |

"The facade has to deal with and do a lot of things... it is the quiet innovation of the project"

The regularity of the panel joins most obviously reference the ribbed hulls of ships, but it's a motif that also recalls, at a more subliminal level, the patterning produced by water.

"Very early on we looked at some key things – one of them was water and how it ripples and sets a repetitive pattern. That gave us a clue about how we might profile the building, because you could have just done a sleek tube; you could imagine it all as vertical faces but that would have been really uninteresting and so we developed this idea of a repetition of elements and how that might develop into a building."

The BENCHMARK Evolution wall panels made from COLORBOND® Ultra steel in the colour

Woodland Grey® lent themselves well to the project and achieving the desired staggered-panel effect. FJMT had employed such vertical patterning for internal applications in the past, but this project was for it the first instance of its application as an external facade.

"With interior panelling you have a bit more freedom about doing what you want to do, but externally it was quite a challenge," says Perry. "We worked really closely with the builder and Kingspan to work through all those complexities, particularly when you have panels rotating and what that means for waterproofing."

The clients are delighted with the pavilion, an outcome the architects attribute to the

dialogue and collaboration with the vessels' naval custodians, who were actively engaged in the early design meetings and provided invaluable insight and advice. Perry finds much satisfaction in many aspects of the project but singles out the facade for special mention.

"For me the north and south elevation are probably my favourite parts of the building because they do everything we hoped they would," says Perry. "I love the way it has ended up working with the two vessels. The facade has to deal with and do a lot of things and, in this context, it is the quiet innovation of the project. If the facade had just one big panel it would have had such a different effect and impact than what has been achieved here with the panels rotating."

How apt, then, that the main controls of the project – *Vampire*, *Onslow*, tide and current – continue to work with the Pavilion post-construction. Every day they have a different conversation with the facade, as moving water and vessels reflect on the panels, producing fine shifts and gradations in the appearance of the building. A beautiful reminder too that limitations can be seen in a positive light. **SP**

PROJECT ANMM Waterfront Pavilion **CLIENT** Australian National Maritime Museum **ARCHITECT** FJMT **PROJECT TEAM** Richard Francis-Jones, Jeff Morehen, James Perry, Elizabeth Carpenter, Lilian Lau, John Perry, Dan Bourke, Joshua Hesford **STRUCTURAL & CIVIL ENGINEER** TTW **BUILDER** Stephen Edwards Constructions **STEEL FABRICATOR AND SHOP DRAWING CONTRACTOR** S+L Steel **CLADDING CONTRACTOR** JML **PRINCIPAL STEEL COMPONENTS** Kingspan BENCHMARK Evolution insulated wall panels made from COLORBOND® Ultra steel in the colour Woodland Grey® **PROJECT TIMEFRAME** 12 months **AWARDS** 2016 Australian Institute of Architects NSW Chapter Awards – Commendation **BUILDING SIZE** 1200m² (includes internal and external spaces) **TOTAL PROJECT COST** Construction cost approx. \$8m



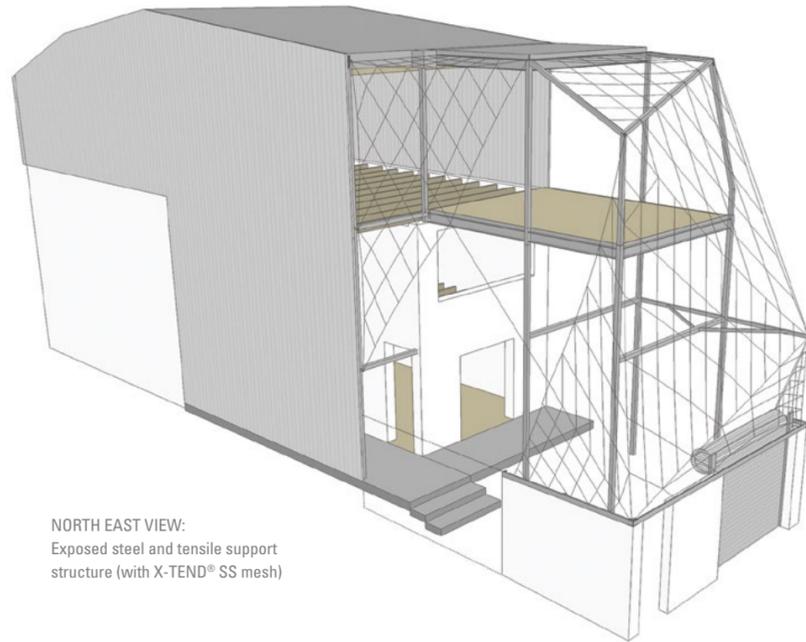
WELL WOVEN

Tasked with transforming the “ugliest house on the street”, architect Fiona Winzar has employed a chorus of steel that frames, clads, beautifies and shades a former clinker-brick town house. Words **Rob Gillam** Photography **Paul Bradshaw**

Four growing children helped sway a decision by Fiona Winzar and her husband to seek more living room for their family. She spied an opportunity in a 1980s brick town house in South Melbourne that she briefly considered demolishing, before settling on retaining the original building’s shell and morphing new steel additions onto it.

“That clinker-brick almost seemed a bit brutal,” says Winzar. “We decided to employ a lightweight steel structure with some timber as a foil. We have structural steel studs to the double-height entry space and a series of portal frames for the top floor living level, allowing us to keep the new walls slim.” The shell of the old town house was recycled for the ground floor self-contained studio and middle sleeping floor.

Externally, galvanised 75mm x 75mm SHS is used to support the top floor deck as well as the Ronstan Tensile Architecture-supplied Carl Stahl X-TEND® stainless steel cable mesh, which provides a scaffold for vines to climb. The permeable mesh curtain is carefully sculpted around the exposed exterior framing to the north-facing top deck and lower courtyard.



NORTH EAST VIEW:
Exposed steel and tensile support structure (with X-TEND® SS mesh)

Designed to carry up to two tonnes of ‘green’ weight, the mesh already has tendrils of ornamental grape and will soon envelop this unusual street facade. The resulting green screen will eventually protect the house’s northern face from summer sun, yet allow winter sun to penetrate.

Winzar says she took her inspiration for the mesh screen from the original lattice porch of the Victorian weatherboard residence which was once on the site but was demolished before heritage controls were put in place. “Because our plantings are quite new, our house feels a bit nude at the moment but we know that in a couple of years it will be dressed in a nice green coat.”

In a nod to the light industrial fabric of the area, Winzar deliberately chose raw construction materials for the project, largely sticking with the theme of galvanised steel which extends to balustrades, downpipes, roller-door and – on the eastern and southern facades – liberal amounts of 51mm wall cladding made from galvanised steel.



PROJECT Dreamcatcher House **CLIENT** Winzar family **ARCHITECT** Fiona Winzar Architects **PROJECT TEAM** Anju Maharjan, Manos Mavridis and Kim Bridgland **STRUCTURAL ENGINEER** Perrett Simpson Stantin **STRUCTURAL STEEL FABRICATOR** ACME Steel **TENSILE ENGINEER** Tensys **BUILDER** Rocco Homes **PRINCIPAL STEEL COMPONENTS** Wall cladding: 51mm SPEEDPANEL™ wall cladding made from BlueScope galvanised steel; Roofing: made from COLORBOND® Coolmax® steel in the colour Whitehaven™; Structural: galvanised 75mm x 75mm SHS; Mesh curtain: Carl Stahl X-TEND® stainless steel cable mesh from Ronstan Tensile Architecture **PROJECT TIMEFRAME** Nine-month construction period **AWARDS** Finalist World Architecture Festival 2015, 2015 Australian Institute of Architects Victoria State Awards – Shortlisted for Houses and Sustainable Architecture, 2016 Houses Awards – Shortlisted **BUILDING SIZE** 130m²

“We selected that cladding for its finish and although it’s lightweight it is stiff and strong because of the aerated concrete inside it. It comes in super-long lengths, up to nine metres, which a couple of installers can handle and install from inside the site which was beneficial because we had very limited exterior access.”

Sustainability was another key consideration for the project and several measures were taken, including the selection of a high solar reflectance roof made from COLORBOND® Coolmax® steel in the colour Whitehaven™. “We went for the product with the

highest solar reflectivity and lowest solar absorption in the COLORBOND® steel range. Along with insulation, that assists in reducing the amount of air conditioning we need. We also have a three kilowatt, 12 solar panel array up there. We’re only using half the energy we actually produce.”

Now that work is complete and she’s had ample time for reflection, what does Winzar think of this house with a mesh facade so reminiscent of the Native American Indian talismans believed to filter good and bad dreams?

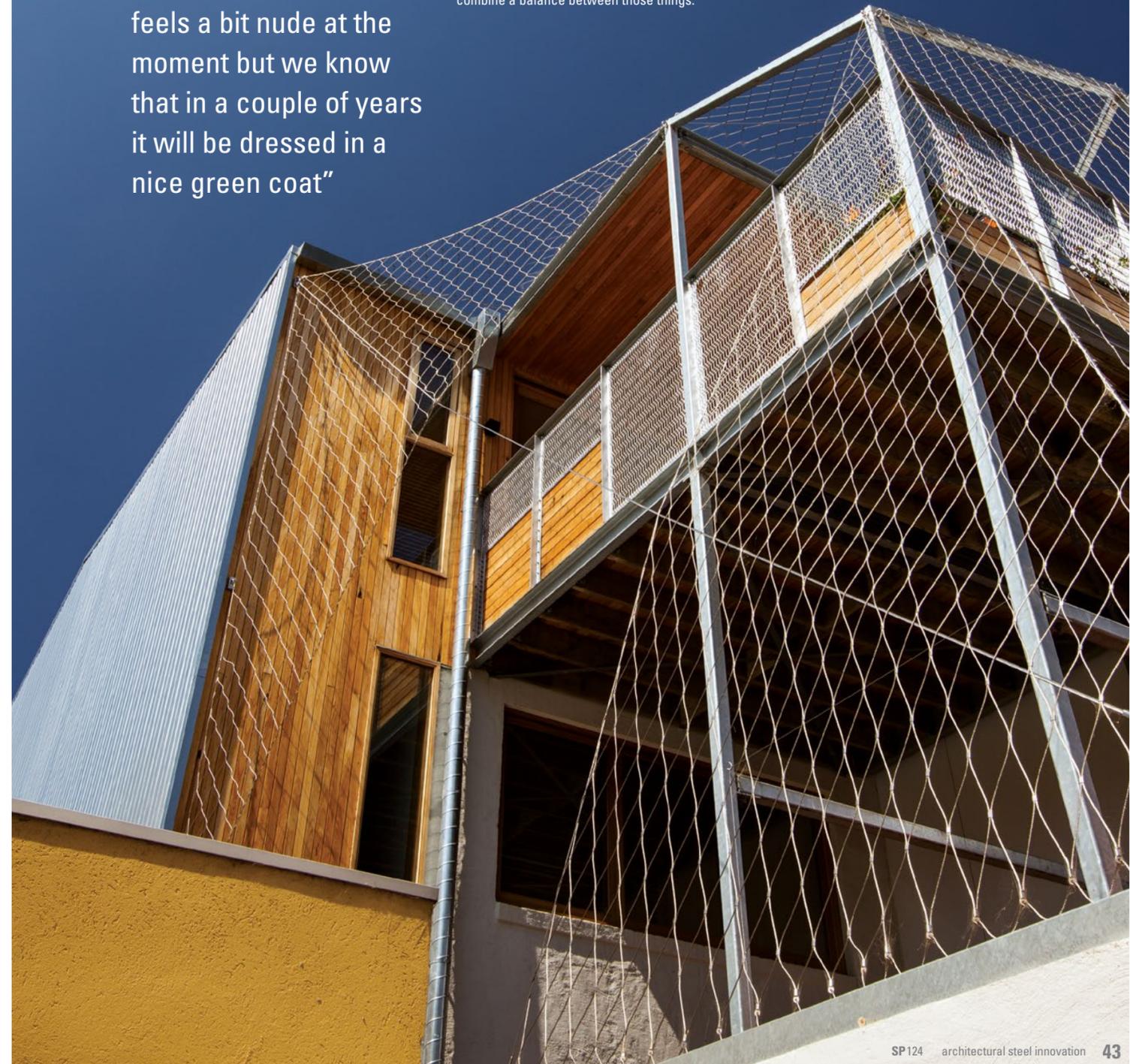
“At its most basic it could have been just a big square extension out and off, but we wanted to apply a sculptural greening element; a degree of symmetry combined with asymmetrical organic form-making. In my work I’m trying to combine a balance between those things.”

Although once an ugly duckling of the street, Winzar denies the house is now a pretty swan.

“I wouldn’t call it a pretty house. I think it’s interesting but it’s unusual and unexpected so therefore can be somewhat confronting.

“I think that there’s a lightness and elegance in the mesh structure that is quite feminine. I’m really happy with the fact that it has a very fine and slender look and it helps the whole expression to be relatively understated. It’s not heroic but it’s not conservative, either. Maybe that’s a bit of me in there.” **SP**

“Because our plantings are quite new, our house feels a bit nude at the moment but we know that in a couple of years it will be dressed in a nice green coat”





STEEL PROFILE #124



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